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STATUTE NOTE

1997 Kyoto Protocol

The 1992 United Nations Framework Convention on Climate Change (UNFCCC) was opened for signature at the Earth Summit, Rio de Janeiro, from 4 to 14 June, 1992, in response to scientific concern that "greenhouse gases", such as carbon dioxide, methane and nitrous oxide, which trapped heat within the Earth's atmosphere, are causing global warming. In the last few hundred years industrialization and burning of fossil fuels have increased carbon dioxide concentrations in the atmosphere. Coincidently there has also been an increase in global temperature. If these two trends are linked, then the possibility exists that anthropogenic emissions might cause major changes in the Earth's climate. The objective of the UNFCCC was thus to stabilize greenhouse gas emissions and thereby, using the precautionary principle, prevent the ecological and socio-economic impacts of climate change.[1] In 1997, at the third session of the UNFCCC Conference of Parties in Kyoto,[2] a Protocol was agreed which detailed emission reduction targets and a timetable. This Kyoto Protocol would enter into force 90 days after two criteria had been met. Firstly, the protocol had to be ratified by at least 55 countries. Secondly, the countries ratifying the protocol had to include those responsible for at least 55% of the total 1990 emissions from developed countries (Annex I countries[3]). The first criterion was reached on 31 May, 2002 with simultaneous ratification by the 15 member states of the European Union and the second criterion was achieved by ratification by Russia on 18 November, 2004. The Kyoto Protocol thus entered into effect on 16 February, 2005.

If scientific predictions for anthropogenic climate change are correct, then there will be dramatic climatic changes.[4] Africa is thought to be the continent most vulnerable to climate change. It is likely that floods and droughts caused by El Niño events will increase with major effects on agriculture and

[1] Article 2. Objective. "The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner."

[2] UNFCCC 3rd Conference of the Parties held in Kyoto, Japan, 1–10 December, 1997, attended by almost 10,000 participants, including 2,200 official delegates.

[3] Developed countries were defined in the Kyoto Protocol as Annex I parties, which had previously been listed in the UNFCCC, and which were considered historically to be the main emitters of greenhouse gases. The division of parties into developed and developing countries used the principle of "common but differentiated responsibilities" (Article 3/1 of the UNFCCC).

[4] *Climate Change 2001. Synthesis report, IPCC reports*, Cambridge University Press, Cambridge, 2001. The Intergovernmental Panel on Climate Change (IPCC) was established by World Meteorological Office (WMO) and United Nations Environment Programme (UNEP) to assess scientific, technical and socio-economic information relevant for the understanding of climate change, its potential impacts and options for adaptation and mitigation. The 2001 report is the third assessment report. The report contains predictions of future climate changes.

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infrastructure.[5] Bioclimatic models of vegetation under proposed future climates show major changes in areas bordering the Sahara and in the Congo basin.[6] However, scientific predictions of future climate change in Africa are likely to be hindered by a lack of meteorological data and trained climatologists. A recent report stated that "the African climate observing system is in a worse state than that on any continent and is deteriorating".[7] The report also highlighted the fact that the effects of climate change on African agriculture and infrastructure may hinder achievement of the United Nations Millennium Development Goals which have a strong focus on poverty alleviation and environmental sustainability.[8] For example, floods in 2000 reduced Mozambique's annual growth rate from 8% to 2%, whilst drought in the same year substantially lowered hydro-electric power output in Kenya. Future climate predictions suggest that such extremes will become more frequent and severe.

Although the Kyoto Protocol is now in effect, seven years after it was opened for signature, the United States of America has not ratified the protocol. This is of some significance because the USA is the world's largest emitter of greenhouse gases. In 1997 the Byrd-Hagel Resolution to the United States Senate expressed two fundamental objections to the protocol.[9] Firstly the senators objected to the concept of "common but differentiated responsibilities" under which the Annex I developed countries bear the responsibility for reducing greenhouse gases without similar requirements for developing countries. Secondly, they were concerned that the protocol would seriously harm the United States' economy. The resolution was passed by a vote of

[5] Although El Niño-Southern Oscillation climate events (ENSO) are related to sea surface temperature changes in the south-eastern Pacific Ocean, they have global effects. ENSO events are correlated with: lower rainfall in western Oceania, India, south-eastern Africa and north-eastern South America; higher rainfall in western South America and eastern equatorial Africa. In 1991–93 a moderate ENSO event corresponded with severe drought in south-eastern Africa affecting nearly 100 million people. In 1997 an ENSO event caused high rainfall and floods in eastern Africa with Lake Victoria rising by 1.7 m. M.A. Cane, G. Eshel, and R.W. Buckland, "Forecasting Zimbabwean maize yield using eastern equatorial Pacific sea surface temperature", (1994) 370 *Nature* 204–205. C. Birkett, R. Murtugudde, and T. Allan, "Indian Ocean climate event brings floods to East Africa's lakes and the Sudd marsh", (1999) 26(8) *Geophysical Research Letters* 1031–1034. M. Latif *et al*., "The role of Indian Ocean sea surface temperature in forcing East African rainfall anomalies during December-January 1997/98", (1999) 12 *Journal of Climate* 3497–3504.

[6] S. Tokumine *et al*., "Future Projections of Sub-Saharan African Plant Species Richness Distributions under Global Climate Change: Individual Species Modelling at the Continental Scale". Paper presented at the Trees, Rain and Politics in Africa conference, Oxford, UK, 29 September–1 October, 2004 and at the American Association for Advancement of Science meeting in Denver, USA, 17 February, 2003.

[7] R. Washington, M. Harrison, and D. Conway, *African Climate Report. A report commissioned by the UK government to review African climate science, policy and options for action*. Department for Environment, Food and Rural Affairs and Department for International Development, London, 2004.

[8] United Nations Millennium Declaration. Resolution adopted by the UN General Assembly at the Millennium Summit of the United Nations, New York, 6–8 September, 2000. A/Res 55/2.

[9] 105th Congress of the United States Senate, 1st Session, 25 July, 1997, sponsored by Senator Robert Byrd and Senator Chuck Hagel, "(1) the United States should not be a signatory to any protocol to, or other agreement regarding, the United Nations Framework Convention on Climate Change of 1992, at negotiations in Kyoto in December 1997, or thereafter, which would (A) mandate new commitments to limit or reduce greenhouse gas emissions for the Annex I Parties, unless the protocol or other agreement also mandates new specific scheduled commitments to limit or reduce greenhouse gas emissions for Developing Country Parties within the same compliance period, or (B) would result in serious harm to the economy of the United States."

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95–0. More recently, these concerns have emerged again at the 10th session of the UNFCCC Conference of the Parties (COP 10).[10] Although COP 10 is the first meeting at which the Kyoto Protocol entering into effect could be discussed, a key issue was what will happen when the protocol's targets expire in 2012. One of the main questions is whether developing nations, such as rapidly industrializing countries like China and India, will join the Annex I parties in having their greenhouse gas emissions capped, leading to concerns by those countries about negative effects on their economic growth. Scientific uncertainty is also playing a role in political concerns.[11] This is particularly relevant for Africa, where the climate is notoriously dynamic.[12] Ultimately, given the lack of comprehensive meteorological data from Africa, it may be difficult to distinguish between natural climate variability and human-induced climate change, thus making it difficult to overcome the concerns of those expressing doubts over the causes of global warming. To be effective the UNFCCC needs to have the active involvement of all major emitters of greenhouse gases, including the USA and non-Annex I developing countries. It is likely that the Kyoto Protocol will need to be renegotiated soon after entering into force and scientific evidence will play a key role in determining what limits, if any, are placed on the parties.

Jon C. Lovett*

[10] 10th session of the Conference of the Parties to the UNFCCC held in Buenos Aires 6–17 December, 2004 attended by 6,200 government officials, UN and NGO observers and journalists.

[11] For example, B. Lomborg, *The Sceptical Environmentalist. Measuring the Real State of the World*, Cambridge University Press, Cambridge, 1998. In the chapter on Global Warming, Lomborg states that he "Accepts the reality of global warming, but questions the way future scenarios have been arrived at . . . ". He suggests that it would be better to spend the $150 billion per year the Kyoto Protocol is projected to cost on poverty alleviation instead, but does not come up with a clear mechanism on how this approach will be implemented.

[12] For example, climate in the Sahel has fluctuated markedly over the half-century, causing a reappraisal of policies associated with the concept of desertification. C.J. Tucker, H.E. Dregne, and W.W. Newcomb, "Expansion and contraction of the Sahara Desert from 1980 to 1990", (1991) 253 *Science* 299–301; S.G. Thomas and N.J. Middleton, *Desertification: Exploding the Myth*, John Wiley & Sons, Chichester, 1994. J.P. Grist and S.E. Nicholson, "A study of the dynamic factors influencing the rainfall variability in the West African Sahel", (2001) 14 *Journal of Climate* 1337–1359.

* Senior Lecturer, Centre for Ecology, Law and Policy, Environment Department, University of York, York, YO10 5DD, England.

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